REMARKS

Claims 1-17 are pending. Claims 6-17 stand withdrawn from consideration. Claims 1-5 stand rejected.

Specification

Applicants have amended the Specification at page 4, line 23, as suggested by the Examiner.

Regarding the use of trademarks, Applicants assert that identification of trademarks by "®" or "™" symbols is acceptable as an alternative to the identification of trademarks in all caps. MPEP § 608.01(v).

§ 103 Rejections

Claims 1-5 stand rejected under 35 USC § 103(a) as purportedly unpatentable over U.S. Pat. No. 4,293,396 (Allen) in view of U.S. Pat. App. Pub. No. 2002/0134501 (Fan). Applicants respectfully traverse.

It is axiomatic that, in order to establish a prima facie case of obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974); *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970)("All words in a claim must be considered in judging the patentability of that claim against the prior art.")(cited at MPEP § 2143.03). In the present case, no prima facie case of obviousness has been established because none of the cited references teaches or suggests the step of "compressing said coated plain-weave carbon fiber cloth to a compression of 25% or greater," recited in step c) of claim 1.

As noted in the Office Action, Allen does not teach the step of compressing a gas diffusion layer to a compression of 25% or greater, recited in step c) of claim 1. (Office Action at p. 4.) As noted in the Office Action, Fan purportedly teaches a method where a coated carbon cloth is "rolled to substantially eliminate cracks." (Id.) The Office Action correctly observes that "the amount of compression of the coated cloth is not cited" in Fan. (Id.) Indeed, the term "rolling," used throughout the Fan reference, does not necessarily imply *any* compression at all. In order to infer from Fan the substantial degree of compression required in the present claims,

(25% in claim 1, 28% in claim 2 and 40% in claim 3), the Examiner relies on an incorrect and impermissible conclusion that Fan and Applicant's claims share "identical use and outcomes." (Id.)

As noted above, the Office Action points out that the "rolling" step in Fan is for the stated purpose of eliminating cracks in a surface coating on a carbon cloth, a purpose which could be inferred to require no more than superficial deformation of the surface coating on the carbon cloth. In contrast to the stated purpose of Fan, the present Specification concerns manufacture of a GDL "which can be incorporated into a membrane electrode assembly (MEA) comprising a very thin polymer electrolyte membrane (PEM) without increased shorting across the PEM even when the MEA is under compression." (Specification at p. 1, lns. 12-14.) The very thin PEM is "typically 50 microns or less in thickness, more typically 35 microns or less in thickness, and most typically 25 microns or less in thickness." (Specification at p. 7, lns 17-18.) By way of comparison, the PEM taught in Fan has a thickness of 5 mils (Fan para. 46) or 127 microns, more than 2 ½ times larger. To satisfy the purpose of the present invention, the present claims require compression of the entire cloth, not just a surface layer, by at least 25%, or, in claim 3, by more than 40%.

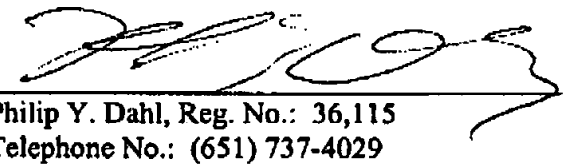
The Fan reference and the present application plainly do not share "identical use and outcomes." Fan addresses the elimination of cracks in a surface coating on the GDL. The present invention addresses reduction of shorting across a different component of the fuel cell, the PEM. The Examiner has demonstrated no connection between the prevention of cracks in a surface coating of the GDL and reduction of shorting across the PEM, nor do either of the cited references teach or suggest such a connection, nor is such a connection apparent. Neither of the cited references teaches or suggests the step of compressing a gas diffusion layer to a compression of 25% or greater, recited in step c) of claim 1, nor can such a teaching be read into either reference.

The rejection of claims 1-5 under 35 USC § 103(a) as purportedly unpatentable over Allen in view of Fan has been overcome and should be withdrawn.

In view of the above, it is submitted that the application is in condition for allowance. Reconsideration of the application is requested.

Respectfully submitted,

November 7, 2004
Date

By: 
Philip Y. Dahl, Reg. No.: 36,115
Telephone No.: (651) 737-4029

Office of Intellectual Property Counsel
3M Innovative Properties Company
Facsimile No.: 651-736-3833